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DOE Oil Field Takes Pioneering Role In Large-Scale CO2 Sequestration Test

Project at Teapot Dome Oil Field Will Support President Bush's Climate Change Initiative

Washington, DC - The Department of Energy's (DOE) "Teapot Dome" oil field in Wyoming will anchor a pioneering scientific venture that ultimately could prove one option of large-scale, region-wide carbon sequestration, a critical step in support of emissions-free energy and the goals of President Bush's Climate Initiative.

The project will be managed by DOE's Rocky Mountain Oilfield Testing Center (RMOTC), which operates the Teapot Dome oil field, also known as Naval Petroleum Reserve No. 3. In managing the project, RMOTC will link the concepts of carbon sequestration and enhanced oil recovery through under-ground injection of carbon dioxide gas (CO₂) into older fields to boost production that has declined. The research project also will involve a cooperating oil production company plus several universities and national laboratories.

"The early steps of this cooperative venture show the classic markings of a win-win proposition for American consumers," Secretary Abraham said. "Carbon sequestration is a critical element in achieving the President's objectives in zero emissions energy, establishing the new hydrogen economy and lowering our present economy's carbon intensity. We also need to identify ways to increase domestic energy production right now in the interests of making the economy stronger and increasing energy security."

The potential of carbon sequestration potential from the project is projected to be at least 2.6 million tons of CO₂ annually (almost 700,000 tons of carbon) with a concurrent rise in related oil production of about 30,000 barrels a day, almost six times the current production level. Project participants met last week to complete plans for the first phase of the three-phase proposal. Information gathered in phase one will be evaluated to determine the nature, feasibility and merit of subsequent steps.

The Teapot Dome project could grow to be one of the three largest sequestration tests in the world. Conceived with a potential surface area spanning 50-square-miles, its test area encompasses the contiguous Salt Creek oil field of Anadarko Petroleum Corp., the cooperating company. Anadarko's plans for enhanced oil recovery there make the Teapot Dome investigation possible.

Anadarko plans ultimately to inject about 7,200 tons a day of CO₂ gas into the declining, century-old Salt Creek field, which will boost production from about 5,300 barrels a day to 35,000 barrels. The company is building a 125-mile pipeline extension to move by-product gas there from its origin at the Shute Creek natural-gas processing plant in western Wyoming. A short spur will deliver CO₂ for injection at Teapot Dome. RMOTC will piggyback Anadarko's Salt Creek effort, in order to minimize government costs. In-kind contributions from Anadarko and others may total about two-thirds of the early costs while the federal government would pay one-third.

The venture is expected to yield important dual assessments, including determination of optimal carbon sequestration levels in depleted oil and gas fields throughout the multi-state Rocky Mountain region, and the optimum combination of sequestration and enhanced oil recovery. The combined Salt Creek and Teapot Dome fields eventually could make up to 33,000 acres available for testing.

Among its potential benefits, the RMOTC project would:

- Immediately store very large amounts of by-product carbon that would otherwise be vented into the atmosphere;
- Serve as a national field laboratory on sequestration;
- Provide a site for scaling up carbon technologies previously successful in small tests;
- Allow the harvesting of a variety of basic and applied research;
- Serve as an international technology showcase;
- Develop a prototype for large scale sequestration; and,
- Establish the means of evaluating and locating potential sequestration reservoirs throughout the Rocky Mountain region.

The Teapot Dome field takes its name from the shape of geologic formation that characterizes it. The full proposal notes that production increases on the federal holding could be earmarked to defray some costs of government participation.

CO₂ injection would begin about 2006 and continue for seven to 10 years. Project partners to date are RMOTC; Anadarko; The University of Wyoming and its Institute for Energy Research; the University of Maryland; the Colorado School of Mines; iReservoir.com; the University of Colorado-British Petroleum Center for 3-D Visualization; the University of Texas at Dallas; the Lawrence Berkeley National Laboratory; the Lawrence Livermore National Laboratory; the Idaho National Engineering and Environmental Laboratory, and the Los Alamos National Laboratory.

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